

ABSTRACT

A process for producing high purity 1,1,1,2-tetrafluoroethane and/or pentafluoroethane by the step of purifying a crude product obtained by reacting trichloroethylene and/or tetrachloroethylene with hydrogen fluoride comprised of a main product including 1,1,1,2-tetrafluoroethane and/or pentafluoroethane, hydrogen fluoride as an azeotropic component with the main product, and impurity ingredients including at least an unsaturated compound, wherein said purifying step includes a step of bringing a mixture obtained by newly adding hydrogen fluoride into said crude product into contact with a fluorination catalyst in the vapor phase to reducing the content of the unsaturated compound contained in said crude product and a distillation step.